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<110> Human Genome Sciences, Inc.

<120> Human Tumor Necrosis Factor Receptor TR13 and TR14

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<140> Unassigned

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<151> 2001-01-17

<150> 09/618,570

<151> 2000-07-14

<150> 60/144,087

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<150> 60/149,450

<151> 1999-07-18

<150> 60/149,712

<151> 1999-08-20

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<170> PatentIn Ver. 2.0

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 tccaaaaaaa aaaaaaaaaa tntarmsnsg sgnatdatgg attgccaaga aaatgagtag 3189  
 tgggaccaat ggggacggtg tgtcacctgc caacggtgtg gtctctggaca ggagctatcc 3249  
 aaggattgtg gttatggaga ggggtggagat gcctactgca cagcctgccc tctctgcagt 3309  
 acaaaaggca gctggggcca ccacaaatgt cagagttgca tcacctgtgc tgtcatcaat 3369  
 cgtgttcaga aggtcaactg cacagctacc tctaatgctg tctgtgggga ctgtttgccc 3429  
 aggttctacc gaaagacacg cattggaggc ctgcaggacc aagagtgcatt cccgtgcacg 3489  
 aagcagaccc ccacctctga ggttcaatgt gccttccagt tgagcttagt ggaggcagat 3549  
 gcacccacag tgcccctca ggaggccaca cttgttgca cttgtgagcag cctgctagtg 3609  
 gtgtttacc tggccttctt ggggctcttc ttcctctact gcaagcagtt cttcaacaga 3669  
 cattgccagc gtggagggtt gctgcagttt gaggctgata aaacagcaaa ggaggaatct 3729  
 ctcttcccc tgcccccag caaggagacc agtgctgagt cccaagtctc ttgggcccct 3789  
 ggcagccttg cccagttgtt ctctctggac tctgttctca taccacaaca gcagcagggg 3849  
 cctgaaatgt ga 3861

<210> 5  
 <211> 226  
 <212> PRT  
 <213> Homo sapiens

<400> 5  
 Met Ser Thr Gly Thr Asn Gly Asp Gly Val Ser Pro Ala Asn Gly Val  
 1 5 10 15  
 Val Leu Asp Arg Ser Tyr Pro Arg Ile Val Val Met Glu Arg Val Glu  
 20 25 30  
 Met Pro Thr Ala Gln Pro Ala Leu Leu Ala Val Gln Lys Gln Leu Gly

35 40 45

Pro Pro Gln Met Cys Arg Val Ala Cys Thr Cys Ala Val Ile Asn Arg  
50 55 60

Val Gln Lys Val Asn Cys Thr Pro Thr Ser Asn Ala Val Cys Gly Asp  
65 70 75 80

Cys Leu Pro Arg Phe Tyr Arg Lys Thr Arg Ile Gly Gly Leu Gln Asp  
85 90 95

Gln Glu Cys Ile Pro Cys Thr Lys Gln Thr Pro Thr Ser Glu Val Gln  
100 105 110

Cys Ala Phe Gln Leu Ser Leu Val Glu Ala Asp Ala Pro Thr Val Pro  
115 120 125

Pro Gln Glu Ala Thr Leu Val Ala Leu Val Ser Ser Leu Leu Val Val  
130 135 140

Phe Thr Leu Ala Phe Leu Gly Leu Phe Phe Leu Tyr Cys Lys Gln Phe  
145 150 155 160

Phe Asn Arg His Cys Gln Arg Gly Gly Leu Leu Gln Phe Glu Ala Asp  
165 170 175

Lys Thr Ala Lys Glu Glu Ser Leu Phe Pro Val Pro Pro Ser Lys Glu  
180 185 190

Thr Ser Ala Glu Ser Gln Val Ser Trp Ala Pro Gly Ser Leu Ala Gln  
195 200 205

Leu Phe Ser Leu Asp Ser Val Pro Ile Pro Gln Gln Gln Gly Pro  
210 215 220

Glu Met  
225

<210> 6  
<211> 461  
<212> PRT  
<213> Homo sapiens

<400> 6  
Met Ala Pro Val Ala Val Trp Ala Ala Leu Ala Val Gly Leu Glu Leu  
1 5 10 15

Trp Ala Ala His Ala Leu Pro Ala Gln Val Ala Phe Thr Pro Tyr  
20 25 30

Ala Pro Glu Pro Gly Ser Thr Cys Arg Leu Arg Glu Tyr Tyr Asp Gln  
35 40 45

Thr Ala Gln Met Cys Cys Ser Lys Cys Ser Pro Gly Gln His Ala Lys  
50 55 60

Val Phe Cys Thr Lys Thr Ser Asp Thr Val Cys Asp Ser Cys Glu Asp  
65 70 75 80

Ser Thr Tyr Thr Gln Leu Trp Asn Trp Val Pro Glu Cys Leu Ser Cys  
 85 90 95  
 Gly Ser Arg Cys Ser Ser Asp Gln Val Glu Thr Gln Ala Cys Thr Arg  
 100 105 110  
 Glu Gln Asn Arg Ile Cys Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu  
 115 120 125  
 Ser Lys Gln Glu Gly Cys Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg  
 130 135 140  
 Pro Gly Phe Gly Val Ala Arg Pro Gly Thr Glu Thr Ser Asp Val Val  
 145 150 155 160  
 Cys Lys Pro Cys Ala Pro Gly Thr Phe Ser Asn Thr Thr Ser Ser Thr  
 165 170 175  
 Asp Ile Cys Arg Pro His Gln Ile Cys Asn Val Val Ala Ile Pro Gly  
 180 185 190  
 Asn Ala Ser Arg Asp Ala Val Cys Thr Ser Thr Ser Pro Thr Arg Ser  
 195 200 205  
 Met Ala Pro Gly Ala Val His Leu Pro Gln Pro Val Ser Thr Arg Ser  
 210 215 220  
 Gln His Thr Gln Pro Thr Pro Glu Pro Ser Thr Ala Pro Ser Thr Ser  
 225 230 235 240  
 Phe Leu Leu Pro Met Gly Pro Ser Pro Pro Ala Glu Gly Ser Thr Gly  
 245 250 255  
 Asp Phe Ala Leu Pro Val Gly Leu Ile Val Gly Val Thr Ala Leu Gly  
 260 265 270  
 Leu Leu Ile Ile Gly Val Val Asn Cys Val Ile Met Thr Gln Val Lys  
 275 280 285  
 Lys Lys Pro Leu Cys Leu Gln Arg Glu Ala Lys Val Pro His Leu Pro  
 290 295 300  
 Ala Asp Lys Ala Arg Gly Thr Gln Gly Pro Glu Gln Gln His Leu Leu  
 305 310 315 320  
 Ile Thr Ala Pro Ser Ser Ser Ser Ser Ser Leu Glu Ser Ser Ala Ser  
 325 330 335  
 Ala Leu Asp Arg Arg Ala Pro Thr Arg Asn Gln Pro Gln Ala Pro Gly  
 340 345 350  
 Val Glu Ala Ser Gly Ala Gly Glu Ala Arg Ala Ser Thr Gly Ser Ser  
 355 360 365  
 Asp Ser Ser Pro Gly Gly His Gly Thr Gln Val Asn Val Thr Cys Ile  
 370 375 380  
 Val Asn Val Cys Ser Ser Ser Asp His Ser Ser Gln Cys Ser Ser Gln  
 385 390 395 400

Ala Ser Ser Thr Met Gly Asp Thr Asp Ser Ser Pro Ser Glu Ser Pro  
405 410 415

Lys Asp Glu Gln Val Pro Phe Ser Lys Glu Glu Cys Ala Phe Arg Ser  
420 425 430

Gln Leu Glu Thr Pro Glu Thr Leu Leu Gly Ser Thr Glu Glu Lys Pro  
435 440 445

Leu Pro Leu Gly Val Pro Asp Ala Gly Met Lys Pro Ser  
450 455 460

<210> 7  
<211> 159  
<212> PRT  
<213> Homo sapiens

<400> 7  
Met Ser Thr Gly Thr Asn Gly Asp Gly Val Ser Pro Ala Asn Gly Val  
1 5 10 15

Val Leu Asp Arg Ser Tyr Pro Arg Ile Val Val Met Glu Arg Val Glu  
20 25 30

Met Pro Thr Ala Gln Pro Ala Leu Leu Ala Val Gln Lys Gln Leu Gly  
35 40 45

Pro Pro Gln Met Cys Arg Val Ala Cys Thr Cys Ala Val Ile Asn Arg  
50 55 60

Val Gln Lys Val Asn Cys Thr Pro Thr Ser Asn Ala Val Cys Gly Asp  
65 70 75 80

Cys Leu Pro Arg Phe Tyr Arg Lys Thr Arg Ile Gly Gly Leu Gln Asp  
85 90 95

Gln Glu Cys Ile Pro Cys Thr Lys Gln Thr Pro Thr Ser Glu Val Gln  
100 105 110

Cys Ala Phe Gln Leu Ser Leu Val Glu Ala Asp Ala Pro Thr Val Pro  
115 120 125

Pro Gln Glu Ala Thr Leu Val Ala Leu Val Ser Ser Leu Leu Val Val  
130 135 140

Phe Thr Leu Ala Phe Leu Gly Leu Phe Phe Leu Tyr Cys Lys Gln  
145 150 155

<210> 8  
<211> 342  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (28)  
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (31)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (40)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (181)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (276)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (282)
<223> n equals a,t,g, or c

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<400> 8
ggaccttgag ggggcagtga agctgctngc ntctgggtgn aagaccact gccaccctg 60
caaccaggc ttcttcaaaa ccaacaacag cacctgccag cctgcccatt atggttccta 120
ctccaatggc tcagactgta cccgtgccc tgcagggact gaacctgctg tgggatttga 180
ntacaaatgg tggaacacgc tgcccacaaa catggaaacg accgttctca gtgggatcaa 240
cttcgagtag aagggcatga caggctggga ggtggntggg gntcacattt acacagctgc 300
tggagcctca gacaatgact tcatgattct aaatctggtt gt 342

```

```

<210> 9
<211> 291
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<222> (244)
<223> n equals a, t, g or c

```

```

<400> 9
ctcctgtgga gacgtggaaa ggttcctaaag gcaaacagtc ctatacctac atcattgagg 60
agaacactac cagcagcttc acctgggcct tcagaggac cacttttcat gaggcaagca 120
ggaagtacac caatgacgtt gccaaagtct actccatcaa tgtcaccaat gttatgaatg 180
gogtggectc ctactgccgt cctgtgccc tagaagcctc tgatgtgggc tctcctcgca 240
cctntgtgoc tgctgggttac tatattgacc gagattcagg aacctgccac t 291

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<210> 10  
<211> 267  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (41)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (171)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (207)  
<223> n equals a,t,g, or c

<400> 10  
ccaagatcta ctccatcaat gtcaccaatg ttatgaatgg ngtgggctcc tactgccgtc 60  
cctgtgcctt agaagcctct gatgtgggct cctcctgcac ctctgtcct gctggttact 120  
atattgacgg agattcagga acctgccact cctgccccc taacacaatt ntgaagagcc 180  
accagcctta tgggtgtcag gctgtntgc cctgtggtcc agggaccaag aacaacaaga 240  
tccactctct gtgctacaat gattgca 267

<210> 11  
<211> 274  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (107)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (196)  
<223> n equals a,t,g, or c

<400> 11  
aaagaatcaa aaactagagt acaagtactc caagctgggt atgaatgcta ctctcaagga 60  
ctgtgacctg ccagcagctg acagctcgcc atcatggaag gcgaggntgt agaggacgac 120  
ctcatcttta ccagcaagaa gtccactctt gggaagatca aatcatttac ctccaagagg 180  
actcctgatg gatttnactc agtgccgctg aagacatcct caggaggccc agacatggac 240  
ctgtgagagg cactgctgc ctcaactgct tect 274



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<210> 12
<211> 245
<212> DNA
<213> Homo sapiens

<400> 12
ccaagccgaa aatctgtagc gaggaccttg agggggcagt gaagctgctg cctctggtgt 60
gaagacccac tgcccaccct gcaacccagg cttcttcaaa accaacaaca gcacctgcca 120
gccttgccca tatggttccct actccaatgg ctcagactgt acccgctgcc ctgcagggac 180
tgaacctgct gtgggatttg aatacaaatg gtggaacacg ctgcccacaa acatgggaaa 240
cgacc
245

```

```

<210> 13
<211> 292
<212> DNA
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (5)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (202)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (245)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (246)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (291)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (292)
<223> n equals a,t,g, or c

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<400> 13
ggcanaggga atttgactca gtgccgctga agacatcttc aggaggccca gacatggacc 60
tgtgagaggc actgcctgcc tcacctgcct cctcaccttg catagacact ttgcaagcct 120
gcgggaaattt ggggtgccagc atcctgcaac acccactgct gggaaatctc ttcattgtgg 180
ccttatcaga tgtttgaatt tnagatcttt ttttatagag tacccaaacc ctcctttctg 240

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cttgntcaaa acctgcacaaa tatacccaca cttgtttgt aaaaaaaaaa nn

292

<210> 14  
<211> 220  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (164)  
<223> n equals a, t, g or c

<400> 14  
atcttctttt ataggtccaa tgatgtgacc cagtcctgca gttctgggag atcaaccacc 60  
atccgcgtca ggtgcagtc acagaaaact gtcctggaa gtttctgtct gccaggaacg 120  
tgctcagatg ggacctgtga tggtcgcaac ttccacttcc tgtnggagag cgcggtgtct 180  
tgcccgctct gctcagtggc tgactaccat gctatcgta 220

<210> 15  
<211> 427  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (44)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (77)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (234)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (260)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (268)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (271)  
<223> n equals a,t,g, or c

<220>

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<221> misc_feature
<222> (272)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (275)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (305)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (308)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (331)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (353)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (368)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (372)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (381)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (388)
<223> n equals a,t,g, or c

<220>
<221> misc_feature
<222> (398)
<223> n equals a,t,g, or c

<220>

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<221> misc_feature
<222> (400)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (407)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (427)
<223> n equals a,t,g, or c

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<400> 15
aattcggcag agctcagaca atgacttcac gattctcact ctgnttgtgc caggatttag 60
acctccgcag tcggtgntgg cagacacaga gaataaagag gtggccagaa tcacatttgt 120
ctttgagacc ctctgttctg tgaactgtga gctctacttc atgggtgggtg tggaattcta 180
gggaccaaca ctctctgtgg aggacgtggg aaagggttcca aaggggcaaac agtnccctat 240
tacctgacat gcattgaggn aggaacantt nncnaggagg ttccaactgg ggcctttccc 300
gagggnacna ttttttcatg gagggccaag ncagggggagt tacaacccat tgnacgttng 360
gccaaagntc tnatttccat ncaatgtnc accaatgntn atggaanggg tgtgggggcc 420
tgctcttn
427

```

```

<210> 16
<211> 333
<212> DNA
<213> Homo sapiens

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```

<220>
<221> misc_feature
<222> (20)
<223> n equals a,t,g, or c

```

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<220>
<221> misc_feature
<222> (23)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (76)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (80)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (85)

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<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (103)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (129)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (152)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (171)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (244)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (260)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (269)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (275)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (293)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (307)

<223> n equals a,t,g, or c

<220>

<221> misc\_feature

<222> (320)

<223> n equals a,t,g, or c

<400> 16

taactctggt tgtcccgagn ttnaaacctc cgcagtcggt gaatggcaga cacagagaat 60

aaagagggtgg ccagantcan atttntttttt aaaaccctct gtnctgtgaa actgtgaagc 120  
tctacttgna tgggtgggtgt gaaattctag gnaccaaacac tctgtggag nacgtggaaa 180  
aggttccaaa ggcaaacagt cctataccta catcattgaa ggaggaacac taccacgagg 240  
ttgnacctgg gcccttccan agggaccant tttcnatgag ggcaagcagg gangtacacc 300  
attgagngtt gccagggttn tattccttca atg 333

<210> 17  
<211> 70  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (40)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (60)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (66)  
<223> n equals a,t,g, or c

<400> 17  
ggcacaggca aagattattt ctacacacac acggcctgcn atgccaacgg agagacacan 60  
ctcatntaca 70

<210> 18  
<211> 568  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (396)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (465)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (472)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature

<222> (480)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (505)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (545)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (549)  
<223> n equals a,t,g, or c

<400> 18  
gcttcagtg gcttgctcat ggcataaag ctatgtggac agcccaagcc ataccagaa 60  
tcaccttaat tccaactttt tgagggttcag caattggagg tggcaattgg ctttgcattt 120  
taaagtattt cgggtaaagg tgaagtgaag gattttcgtc ttataattt ctgttcgcc 180  
atggcaaata ccatagtgtg gtatttgctt caggagagtt ctttttacag ttttactttt 240  
caatgctgag gcatatttct ttgagcactg tgcttttatg tgtctttcta caaaggggtt 300  
attgtgcagt ggaagaacaa agtacacttg ataaaaacat tttaacata cattgagcct 360  
aaacagcagt taagttgtct ctaaatgaac tagcanaaaa aaaaaatgta gtttttgttt 420  
gtaaggaagg ggaggtattt cctgagaatg aatttttttt ttttnggaaa cnggtttctn 480  
tccataacct tgcttgatt ttacnggagg gacctggga aaaaaattt tcctccaaaa 540  
ttttnaaanc cggtttgaa agggttca 568

<210> 19  
<211> 554  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (396)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (407)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (473)  
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (494)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (541)
<223> n equals a,t,g, or c

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<220>
<221> misc_feature
<222> (542)
<223> n equals a,t,g, or c

```

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<220>
<221> misc_feature
<222> (548)
<223> n equals a,t,g, or c

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<400> 19

gcttcagtggt gcttgctcat ggcataaatg ctatgtggac agcccaagcc ataccagaa 60
tcaccttaat tccaactttt tgagggttcag caattggagg tggcaattgg ctttgcattt 120
taaagtattt cgggtaaagg tgaagtgaag gattttcgtc ttataaattt ctgttcggcc 180
atggcaataa ccatagtga gtatttgctt caggagagtt cttttacag ttttactttt 240
caatgctgag gcatatttct ttgagcactg tgcttttatg tgcctttcta caaagggggt 300
attggtcagt ggaagaacaa agtacacttg ataaaaacat ttccaacata cattgagcct 360
aaacagcagt taagttgtct ctaaatgaac tagcanaaaa aaaaaangta gtttttggtt 420
gtaaggaagg ggaggtattt cctgagaatg aatttttttt tttttggata acngggtttc 480
tctccataaa cctngccttg attttacagg agggaccctg ggaaaaaaat ttttctcca 540
nnattttnaa atcc                                         554

```

```

<210> 20
<211> 310
<212> DNA
<213> Homo sapiens

```

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<220>
<221> misc_feature
<222> (83)
<223> n equals a,t,g, or c

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```

<400> 20
ctgagtatgc ctctttctat tgaatgtca attcaatccc agctttctca ccaccgttcc 60
cctttgatcc ttctcaatt gtnnttttgc ctttagctcc cactatata tctcatgctc 120
agagaaaaac aagtctctta gaggttgatc tctttattct ccaagaatct gtctgaaact 180

```



tgtagacgcta gttcctgtcc cacaactatt aagtgggttta ttaagtacat taggcagaat 240  
 gtgcacttca tcaccaggtt ctagctctgg caaaggagtg ctgtctacag caaggatttt 300  
 tgcttttaga 310

<210> 21  
 <211> 546  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (317)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (340)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (351)  
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gtgtcacctg ccaacggtgt ggtcctggac aggagctatc caaggattgt ggttatggag 180  
aggggtggaga tgcctactgc acagcctgcc ctccctcgag gtacaaaagc agctggggcc 240  
accacaaatg tcagattgac atcacctgtg ctgtcatcaa tcgtgttcag aaggtccaac 300  
tgcacagcta acctctnatg ctgtctgtgg ggatgtttgn cccaagtctc naccgaaaag 360  
acacgccatg ggaaggcttg caggaccang aatggccntc ccgtggcaga aagccagacc 420  
ccccaacnnc tynaggttcc aatgtggcct tnccatttgg aagcttantg ggaaggcaga 480  
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ntgcca 546

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gtgtcacctg ccaacggtgt ggtcctggac aggagctatc caaggattgt ggttatggag 180  
agggtggaga tgctactgac acagcctgcc ctctcgagac tacaaaaagca gctggggcca 240  
ccacaaatgt cagagttgca tcacctgtgc tgtcatcaat cgtgttcaga aggttcaact 300  
gcacagtnac ctctnatget gtctgtgggg ganggtttgc ccaagtttct aaccgaaaga 360  
cacgccattg gaaggctgcc aggaccaagg atggcatccc gtggcacaaa gncagacccc 420  
caacttctga nggttncaaa gtgnccttcc aattggagct taatgggagg cana 474

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cgcccatgga tgagtactgg gacc 24

<210> 25

<211> 34  
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<400> 30  
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 cgcggtaccg cggcactgag tcaaatac 27  
  
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 cgcggtacca tgagtactgg gacc 24  
  
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 <400> 37  
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 tctcccgagc tcttgagggt acatgcgtgg tgggtggacgt aagccacgaa gacctgagg 180  
 tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240  
 aggagcagta caacgacagc tacctgttgg tcagcgtcct caccgtcctg caccaggact 300  
 ggctgaatgg caaggagtac aagtgaagg tctccaacaa agccctccca acccccatcg 360  
 agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420  
 catcccgga tgagctgacc aagaaccagg tcagcctgac ctgcctggtc aaaggcttct 480  
 atccaagcga catcgccgtg gagtgggaga gcaatgggga gccggagaac aactacaaga 540  
 ccacgcctcc cgtgtgggac tccgacggct ccttcttct ctacagcaag ctcaccgtgg 600  
 acaagagcag gtggcagcag gggaaagtct tctcatgctc cgtgatgcat gaggtcttgc 660  
 acaaccacta cagcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc 720  
 gactctagag gat 733

<210> 39  
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<220>  
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 atg gct gag cct ggg cac agc cac cat ctc tcc gcc aga gtc agg gga 105  
 Met Ala Glu Pro Gly His Ser His His Leu Ser Ala Arg Val Arg Gly  
 1 5 10 15  
 aga act gag agg cgc ata ccc cgg ctg tgg cgg ctg ctg ctc tgg gct 153  
 Arg Thr Glu Arg Arg Ile Pro Arg Leu Trp Arg Leu Leu Leu Trp Ala  
 20 25 30  
 ggg acc gcc ttc cag gtg acc cag gga acg gga cgg gag ctt cac gcc 201  
 Gly Thr Ala Phe Gln Val Thr Gln Gly Thr Gly Pro Glu Leu His Ala  
 35 40 45  
 tgc aaa gag tct gag tac cac tat gag tac acg cgg tgt gac agc acg 249  
 Cys Lys Glu Ser Glu Tyr His Tyr Glu Tyr Thr Ala Cys Asp Ser Thr  
 50 55 60  
 ggt tcc agg tgg agg gtc gcc gtg ccg cat acc ccg gcc ctg tgc acc 297  
 Gly Ser Arg Trp Arg Val Ala Val Pro His Thr Pro Gly Leu Cys Thr  
 65 70 75 80

agc ctg cct gac ccc gtc aag ggc acc gag tgc tcc ttc tcc tgc aac 345  
 Ser Leu Pro Asp Phe Pro Val Lys Gly Thr Glu Cys Ser Phe Ser Cys Asn  
 85 90 95

gcc ggg gag ttt ctg gat atg aag gac cag tca tgt aag cca tgc gct 393  
 Ala Gly Glu Phe Leu Asp Met Lys Asp Gln Ser Cys Lys Pro Cys Ala  
 100 105 110

gag ggc cgc tac tcc ctc ggc aca ggc att cgg ttt gat gag tgg gat 441  
 Glu Gly Arg Tyr Ser Leu Gly Thr Gly Ile Arg Phe Asp Glu Trp Asp  
 115 120 125

gag ctg ccc cat ggc ttt gcc agc ctc tca gcc aac atg gag ctg gat 489  
 Glu Leu Pro His Gly Phe Ala Ser Leu Ser Ala Asn Met Glu Leu Asp  
 130 135 140

gac agt gct gct gag tcc acc ggg aac tgt act tcg tcc aag tgg gtt 537  
 Asp Ser Ala Ala Glu Ser Thr Gly Asn Cys Thr Ser Ser Lys Trp Val  
 145 150 155 160

ccc cgg ggc gac tac atc gcc ttc aac acg gac gaa tgc aca gcc aca 585  
 Pro Arg Gly Asp Tyr Ile Ala Phe Asn Thr Asp Glu Cys Thr Ala Thr  
 165 170 175

ctg atg tac gcc gtc aac ctg aag caa tct ggc acc gtt aac ttc gaa 633  
 Leu Met Tyr Ala Val Asn Leu Lys Gln Ser Gly Thr Val Asn Phe Glu  
 180 185 190

tac tac tat cca gac tcc agc atc atc ttt gag ttt ttc gtt cag aat 681  
 Tyr Tyr Tyr Pro Asp Ser Ser Ile Ile Phe Glu Phe Phe Val Gln Asn  
 195 200 205

gac gag tgc cag ccc aat gca gat gac tcc agg tgg atg aag acc aca 729  
 Asp Gln Cys Gln Pro Asn Ala Asp Asp Ser Arg Trp Met Lys Thr Thr  
 210 215 220 225

gag aaa gga tgg gaa ttc cac agt gtg gag cta aat cga ggc aat aat 777  
 Glu Lys Gly Trp Glu Phe His Ser Val Glu Leu Asn Arg Gly Asn Asn  
 225 230 235 240

gtc ctc tat tgg aga acc aca gcc ttc tca gta tgg acc aaa gta ccc 825  
 Val Leu Tyr Trp Arg Thr Thr Ala Phe Ser Val Trp Thr Lys Val Pro  
 245 250 255

aag cct gtg ctg gtg aga aac att gcc ata aca ggg gtg gcc tac act 873  
 Lys Pro Val Leu Val Arg Asn Ile Ala Ile Thr Gly Val Ala Tyr Thr  
 260 265 270

tca gaa tgc ttc ccc tgc aaa cct ggc acg tat gca gac aag cag ggc 921  
 Ser Glu Cys Phe Pro Cys Lys Pro Gly Thr Tyr Ala Asp Lys Gln Gly  
 275 280 285

tcc tct ttc tgc aaa ctt tgc cca gcc aac tct tat tca aat aaa gga 969  
 Ser Ser Phe Cys Lys Leu Cys Pro Ala Asn Ser Tyr Ser Asn Lys Gly  
 290 295 300

gaa act tct tgc cac cag tgt gac cct gac aaa tac tca gag aaa gga 1017  
 Glu Thr Ser Cys His Gln Cys Asp Pro Asp Lys Tyr Ser Glu Lys Gly  
 305 310 315 320

tct tct tcc tgt aac gtg cgc cca gct tgc aca gac aaa gat tat ttc	1065
Ser Ser Ser Cys Asn Val Arg Pro Ala Cys Thr Asp Lys Asp Tyr Phe	
325 330 335	
tac aca cac acg gcc tgc gat gcc aac gga gag aca caa ctc atg tac	1113
Tyr Thr His Thr Ala Cys Asp Ala Asn Gly Glu Thr Gln Leu Met Tyr	
340 345 350	
aaa tgg gcc aag ccg aaa atc tgt agc gag gac ctt gag ggg gca gtg	1161
Lys Trp Ala Lys Pro Lys Ile Cys Ser Glu Asp Leu Glu Gly Ala Val	
355 360 365	
aag ctg cct gcc tct ggt gtg aag acc cac tgc cca ccc tgc aac cca	1209
Lys Leu Pro Ala Ser Gly Val Lys Thr His Cys Pro Pro Cys Asn Pro	
370 375 380	
ggc ttc ttc aaa acc aac aac agc acc tgc cag ccc tgc cca tat ggt	1257
Gly Phe Phe Lys Thr Asn Asn Ser Thr Cys Gln Pro Cys Pro Tyr Gly	
385 390 395 400	
tcc tac tcc aat ggc tca gac tgt acc cgc tgc cct gca ggg act gaa	1305
Ser Tyr Ser Asn Gly Ser Asp Cys Thr Arg Cys Pro Ala Gly Thr Glu	
405 410 415	
cct gct gtg gga ttt gaa tac aaa tgg tgg aac acg ctg ccc aca aac	1353
Pro Ala Val Gly Phe Glu Tyr Lys Trp Trp Asn Thr Leu Pro Thr Asn	
420 425 430	
atg gaa acg acc gtt ctc agt ggg atc aac ttc gag tac aag ggc atg	1401
Met Glu Thr Thr Val Leu Ser Gly Ile Asn Phe Glu Tyr Lys Gly Met	
435 440 445	
aca ggc tgg gag gtg gct ggt gat cac att tac aca gct gct gga gcc	1449
Thr Gly Trp Glu Val Ala Gly Asp His Ile Tyr Thr Ala Ala Gly Ala	
450 455 460	
tca gac aat gac ttc atg att ctc act ctg gtt gtg cca gga ttt aga	1497
Ser Asp Asn Asp Phe Met Ile Leu Thr Leu Val Val Pro Gly Phe Arg	
465 470 475 480	
cct ccg cag tcg gtg atg gca gac aca gag aat aaa gag gtg gcc aga	1545
Pro Pro Gln Ser Val Met Ala Asp Thr Glu Asn Lys Glu Val Ala Arg	
485 490 495	
atc aca ttt gtc ttt gag acc ctc tgt tct gtg aac tgt gag ctc tac	1593
Ile Thr Phe Val Phe Glu Thr Leu Cys Ser Val Asn Cys Glu Leu Tyr	
500 505 510	
ttc atg gtg ggt gtg aat tct agg acc aac act cct gtg gag acg tgg	1641
Phe Met Val Gly Val Asn Ser Arg Thr Asn Thr Pro Val Glu Thr Trp	
515 520 525	
aaa ggt tcc aaa ggc aaa cag tcc tat acc tac atc att gag gag aac	1689
Lys Gly Ser Lys Gly Lys Gln Ser Tyr Thr Tyr Ile Ile Glu Glu Asn	
530 535 540	
act acc acg agc ttc acc tgg gcc ttc cag agg acc act ttt cat gag	1737
Thr Thr Thr Ser Phe Thr Trp Ala Phe Gln Arg Thr Thr Phe His Glu	
545 550 555 560	



gca agc agg aag tac acc aat gac gtt gcc aag atc tac tcc atc aat	1785
Ala Ser Arg Lys Tyr Thr Asn Asp Val Ala Lys Ile Tyr Ser Ile Asn	
565 570 575	
gtc acc aat gtt atg aat ggc gtg gcc tcc tac tgc cgt ccc tgt gcc	1833
Val Thr Asn Val Met Asn Gly Val Ala Ser Tyr Cys Arg Pro Cys Ala	
580 585 590	
cta gaa gcc tct gat gtg ggc tcc tcc tgc acc tct tgt cct gct ggt	1881
Leu Glu Ala Ser Asp Val Gly Ser Ser Cys Thr Ser Cys Pro Ala Gly	
595 600 605	
tac tat att gac cga gat tca gga acc tgc cac tcc tgc ccc cct aac	1929
Tyr Tyr Ile Asp Arg Asp Ser Gly Thr Cys His Ser Cys Pro Pro Asn	
610 615 620	
aca att ctg aaa gcc cac cag cct tat ggt gtc cag gcc tgt gtg ccc	1977
Thr Ile Leu Lys Ala His Gln Pro Tyr Gly Val Gln Ala Cys Val Pro	
625 630 635 640	
tgt ggt cca ggg acc aag aac aac aag atc cac tct ctg tgc tac aat	2025
Cys Gly Pro Gly Thr Lys Asn Asn Lys Ile His Ser Leu Cys Tyr Asn	
645 650 655	
gat tgc acc ttc tca cgc aac act cca acc agg act ttc aac tac aac	2073
Asp Cys Thr Phe Ser Arg Asn Thr Pro Thr Arg Thr Phe Asn Tyr Asn	
660 665 670	
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Phe Ser Ala Leu Ala Asn Thr Val Thr Leu Ala Gly Gly Pro Ser Phe	
675 680 685	
act tcc aaa ggg ttg aaa tac ttc cat cac ttt acc ctc agt ctc tgt	2169
Thr Ser Lys Gly Leu Lys Tyr Phe His His Phe Thr Leu Ser Leu Cys	
690 695 700	
gga aac cag ggt agg aaa atg tct gtg tgc acc gac aat gtc act gac	2217
Gly Asn Gln Gly Arg Lys Met Ser Val Cys Thr Asp Asn Val Thr Asp	
705 710 715 720	
ctc cgg att cct gag ggt gag tca ggg ttc tcc aaa tct atc aca gcc	2265
Leu Arg Ile Pro Glu Gly Glu Ser Gly Phe Ser Lys Ser Ile Thr Ala	
725 730 735	
tac gtc tgc cag gca gtc atc atc ccc cca gag gtg aca ggc tac aag	2313
Tyr Val Cys Gln Ala Val Ile Ile Pro Pro Glu Val Thr Gly Tyr Lys	
740 745 750	
gcc ggg gtt tcc tca cag cct gtc agc ctt gct gat cga ctt att ggg	2361
Ala Gly Val Ser Ser Gln Pro Val Ser Leu Ala Asp Arg Leu Ile Gly	
755 760 765	
gtg aca aca gat atg act ctg gat gga atc acc tcc cca gct gaa ctt	2409
Val Thr Thr Asp Met Thr Leu Asp Gly Ile Thr Ser Pro Ala Glu Leu	
770 775 780	
ttc cac ctg gag tcc ttg gga ata ccg gac gtg atc ttc ttt tat agg	2457
Phe His Leu Glu Ser Leu Gly Ile Pro Asp Val Ile Phe Phe Tyr Arg	
785 790 795 800	

tcc aat gat gtg acc cag tcc tgc agt tct ggg aga tca acc acc atc	2505
Ser Asn Asp Val Thr Gln Ser Cys Ser Ser Gly Arg Ser Thr Thr Ile	
805 810 815	
cgc gtc agg tgc agt cca cag aaa act gtc cct gga agt ttg ctg ctg	2553
Arg Val Arg Cys Ser Pro Gln Lys Thr Val Pro Gly Ser Leu Leu Leu	
820 825 830	
cca gga acg tgc tca gat ggg acc tgt gat ggc tgc aac ttc cac ttc	2601
Pro Gly Thr Cys Ser Asp Gly Thr Cys Asp Gly Cys Asn Phe His Phe	
835 840 845	
ctg tgg gag agc gcg gct gct tgc ccg ctc tgc tca gtg gct gac tac	2649
Leu Trp Glu Ser Ala Ala Ala Cys Pro Leu Cys Ser Val Ala Asp Tyr	
850 855 860	
cat gct atc gtc agc agc tgt gtg gct ggg atc cag aag act act tac	2697
His Ala Ile Val Ser Ser Cys Val Ala Gly Ile Gln Lys Thr Thr Tyr	
865 870 875 880	
gtg tgg cga gaa ccc aag cta tgc tct ggt ggc att tct ctg cct gag	2745
Val Trp Arg Glu Pro Lys Leu Cys Ser Gly Gly Ile Ser Leu Pro Glu	
885 890 895	
cag aga gtc acc atc tgc aaa acc ata gat ttc tgg ctg aaa gtg ggc	2793
Gln Arg Val Thr Ile Cys Lys Thr Ile Asp Phe Trp Leu Lys Val Gly	
900 905 910	
atc tct gca ggc acc tgt act gcc atc ctg ctc acc gtc ttg acc tgc	2841
Ile Ser Ala Gly Thr Cys Thr Ala Ile Leu Leu Thr Val Leu Thr Cys	
915 920 925	
tac ttt tgg aaa aag aat caa aaa cta gag tac aag tac tcc aag ctg	2889
Tyr Phe Trp Lys Lys Asn Gln Lys Leu Glu Tyr Lys Tyr Ser Lys Leu	
930 935 940	
gtg atg aat gct act ctc aag gac tgt gac ctg cca gca gct gac agc	2937
Val Met Asn Ala Thr Leu Lys Asp Cys Asp Leu Pro Ala Ala Asp Ser	
945 950 955 960	
tgc gcc atc atg gaa ggc gag gat gta gag gac gac ctc atc ttt acc	2985
Cys Ala Ile Met Glu Gly Glu Asp Val Glu Asp Asp Leu Ile Phe Thr	
965 970 975	
agc aag aat cac tct ttg gga aga tca aat cat tta cct cca aga gga	3033
Ser Lys Asn His Ser Leu Gly Arg Ser Asn His Leu Pro Pro Arg Gly	
980 985 990	
ctc ctg atg gat ttg act cag tgc cgc tga agacatcctc aggaggccca	3083
Leu Leu Met Asp Leu Thr Gln Cys Arg	
995 1000	
gacatggacc tgtgagaggc actgcctgcc tcacctgcct cctcaccttg catagcacct	3143
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3334

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<211> 1001  
<212> PRT  
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Gly Thr Ala Phe Gln Val Thr Gln Gly Thr Gly Pro Glu Leu His Ala  
35 40 45  
Cys Lys Glu Ser Glu Tyr His Tyr Glu Tyr Thr Ala Cys Asp Ser Thr  
50 55 60  
Gly Ser Arg Trp Arg Val Ala Val Pro His Thr Pro Gly Leu Cys Thr  
65 70 75 80  
Ser Leu Pro Asp Pro Val Lys Gly Thr Glu Cys Ser Phe Ser Cys Asn  
85 90 95  
Ala Gly Glu Phe Leu Asp Met Lys Asp Gln Ser Cys Lys Pro Cys Ala  
100 105 110  
Glu Gly Arg Tyr Ser Leu Gly Thr Gly Ile Arg Phe Asp Glu Trp Asp  
115 120 125  
Glu Leu Pro His Gly Phe Ala Ser Leu Ser Ala Asn Met Glu Leu Asp  
130 135 140  
Asp Ser Ala Ala Glu Ser Thr Gly Asn Cys Thr Ser Ser Lys Trp Val  
145 150 155 160  
Pro Arg Gly Asp Tyr Ile Ala Phe Asn Thr Asp Glu Cys Thr Ala Thr  
165 170 175  
Leu Met Tyr Ala Val Asn Leu Lys Gln Ser Gly Thr Val Asn Phe Glu  
180 185 190  
Tyr Tyr Tyr Pro Asp Ser Ser Ile Ile Phe Glu Phe Phe Val Gln Asn  
195 200 205  
Asp Gln Cys Gln Pro Asn Ala Asp Asp Ser Arg Trp Met Lys Thr Thr  
210 215 220  
Glu Lys Gly Trp Glu Phe His Ser Val Glu Leu Asn Arg Gly Asn Asn  
225 230 235 240  
Val Leu Tyr Trp Arg Thr Thr Ala Phe Ser Val Trp Thr Lys Val Pro  
245 250 255  
Lys Pro Val Leu Val Arg Asn Ile Ala Ile Thr Gly Val Ala Tyr Thr  
260 265 270

Ser Glu Cys Phe Pro Cys Lys Pro Gly Thr Tyr Ala Asp Lys Gln Gly  
 275 280 285  
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 290 295 300  
 Glu Thr Ser Cys His Gln Cys Asp Pro Asp Lys Tyr Ser Glu Lys Gly  
 305 310 315 320  
 Ser Ser Ser Cys Asn Val Arg Pro Ala Cys Thr Asp Lys Asp Tyr Phe  
 325 330 335  
 Tyr Thr His Thr Ala Cys Asp Ala Asn Gly Glu Thr Gln Leu Met Tyr  
 340 345 350  
 Lys Trp Ala Lys Pro Lys Ile Cys Ser Glu Asp Leu Glu Gly Ala Val  
 355 360 365  
 Lys Leu Pro Ala Ser Gly Val Lys Thr His Cys Pro Pro Cys Asn Pro  
 370 375 380  
 Gly Phe Phe Lys Thr Asn Asn Ser Thr Cys Gln Pro Cys Pro Tyr Gly  
 385 390 395 400  
 Ser Tyr Ser Asn Gly Ser Asp Cys Thr Arg Cys Pro Ala Gly Thr Glu  
 405 410 415  
 Pro Ala Val Gly Phe Glu Tyr Lys Trp Asn Thr Leu Pro Thr Asn  
 420 425 430  
 Met Glu Thr Thr Val Leu Ser Gly Ile Asn Phe Glu Tyr Lys Gly Met  
 435 440 445  
 Thr Gly Trp Glu Val Ala Gly Asp His Ile Tyr Thr Ala Ala Gly Ala  
 450 455 460  
 Ser Asp Asn Asp Phe Met Ile Leu Thr Leu Val Val Pro Gly Phe Arg  
 465 470 475 480  
 Pro Pro Gln Ser Val Met Ala Asp Thr Glu Asn Lys Glu Val Ala Arg  
 485 490 495  
 Ile Thr Phe Val Phe Glu Thr Leu Cys Ser Val Asn Cys Glu Leu Tyr  
 500 505 510  
 Phe Met Val Gly Val Asn Ser Arg Thr Asn Thr Pro Val Glu Thr Trp  
 515 520 525  
 Lys Gly Ser Lys Gly Lys Gln Ser Tyr Thr Tyr Ile Ile Glu Glu Asn  
 530 535 540  
 Thr Thr Thr Ser Phe Thr Trp Ala Phe Gln Arg Thr Thr Phe His Glu  
 545 550 555 560  
 Ala Ser Arg Lys Tyr Thr Asn Asp Val Ala Lys Ile Tyr Ser Ile Asn  
 565 570 575  
 Val Thr Asn Val Met Asn Gly Val Ala Ser Tyr Cys Arg Pro Cys Ala  
 580 585 590

Leu Glu Ala Ser Asp Val Gly Ser Ser Cys Thr Ser Cys Pro Ala Gly  
 595 600 605  
 Tyr Tyr Ile Asp Arg Asp Ser Gly Thr Cys His Ser Cys Pro Pro Asn  
 610 615 620  
 Thr Ile Leu Lys Ala His Gln Pro Tyr Gly Val Gln Ala Cys Val Pro  
 625 630 635 640  
 Cys Gly Pro Gly Thr Lys Asn Asn Lys Ile His Ser Leu Cys Tyr Asn  
 645 650 655  
 Asp Cys Thr Phe Ser Arg Asn Thr Pro Thr Arg Thr Phe Asn Tyr Asn  
 660 665 670  
 Phe Ser Ala Leu Ala Asn Thr Val Thr Leu Ala Gly Gly Pro Ser Phe  
 675 680 685  
 Thr Ser Lys Gly Leu Lys Tyr Phe His His Phe Thr Leu Ser Leu Cys  
 690 695 700  
 Gly Asn Gln Gly Arg Lys Met Ser Val Cys Thr Asp Asn Val Thr Asp  
 705 710 715 720  
 Leu Arg Ile Pro Glu Gly Glu Ser Gly Phe Ser Lys Ser Ile Thr Ala  
 725 730 735  
 Tyr Val Cys Gln Ala Val Ile Ile Pro Pro Glu Val Thr Gly Tyr Lys  
 740 745 750  
 Ala Gly Val Ser Ser Gln Pro Val Ser Leu Ala Asp Arg Leu Ile Gly  
 755 760 765  
 Val Thr Thr Asp Met Thr Leu Asp Gly Ile Thr Ser Pro Ala Glu Leu  
 770 775 780  
 Phe His Leu Glu Ser Leu Gly Ile Pro Asp Val Ile Phe Phe Tyr Arg  
 785 790 795 800  
 Ser Asn Asp Val Thr Gln Ser Cys Ser Ser Gly Arg Ser Thr Thr Ile  
 805 810 815  
 Arg Val Arg Cys Ser Pro Gln Lys Thr Val Pro Gly Ser Leu Leu Leu  
 820 825 830  
 Pro Gly Thr Cys Ser Asp Gly Thr Cys Asp Gly Cys Asn Phe His Phe  
 835 840 845  
 Leu Trp Glu Ser Ala Ala Ala Cys Pro Leu Cys Ser Val Ala Asp Tyr  
 850 855 860  
 His Ala Ile Val Ser Ser Cys Val Ala Gly Ile Gln Lys Thr Thr Tyr  
 865 870 875 880  
 Val Trp Arg Glu Pro Lys Leu Cys Ser Gly Gly Ile Ser Leu Pro Glu  
 885 890 895  
 Gln Arg Val Thr Ile Cys Lys Thr Ile Asp Phe Trp Leu Lys Val Gly  
 900 905 910

Ile Ser Ala Gly Thr Cys Thr Ala Ile Leu Leu Thr Val Leu Thr Cys  
915 920 925

Tyr Phe Trp Lys Lys Asn Gln Lys Leu Glu Tyr Lys Tyr Ser Lys Leu  
930 935 940

Val Met Asn Ala Thr Leu Lys Asp Cys Asp Leu Pro Ala Ala Asp Ser  
945 950 955 960

Cys Ala Ile Met Glu Gly Glu Asp Val Glu Asp Asp Leu Ile Phe Thr  
965 970 975

Ser Lys Asn His Ser Leu Gly Arg Ser Asn His Leu Pro Pro Arg Gly  
980 985 990

Leu Leu Met Asp Leu Thr Gln Cys Arg  
995 1000

<210> 41

<211> 350

<212> PRT

<213> Homo sapiens

<400> 41

Met Lys Ser Val Leu Tyr Ser Ser Tyr Ile Leu Phe Leu Ser Cys Ile Ile  
1 5 10 15

Ile Asn Gly Arg Asp Val Ala Pro Tyr Ala Pro Ser Asn Gly Lys Cys  
20 25 30

Lys Asp Asn Glu Tyr Asn Arg His Asn Leu Cys Cys Leu Ser Cys Pro  
35 40 45

Pro Gly Thr Tyr Ala Ser Arg Leu Cys Asp Ser Lys Thr Asn Thr Asn  
50 55 60

Thr Gln Cys Thr Pro Cys Gly Ser Asp Thr Phe Thr Ser Arg Asn Asn  
65 70 75 80

His Leu Pro Ala Cys Leu Ser Cys Asn Gly Arg Cys Asp Ser Asn Gln  
85 90 95

Val Glu Thr Arg Ser Cys Asn Thr Thr His Asn Arg Ile Cys Asp Cys  
100 105 110

Ala Pro Gly Tyr Tyr Cys Leu Leu Lys Gly Ser Gly Cys Lys Ala Cys  
115 120 125

Val Ser Gln Thr Lys Cys Gly Ile Gly Tyr Gly Val Ser Gly His Thr  
130 135 140

Pro Thr Gly Asp Val Ile Cys Ser Pro Cys Gly Leu Gly Thr Tyr Ser  
145 150 155 160

His Thr Val Ser Ser Ala Asp Lys Cys Glu Pro Val Pro Ser Asn Thr  
165 170 175

Phe Asn Tyr Ile Asp Val Glu Ile Asn Leu Tyr Pro Val Asn Asp Thr

	180		185		190
Ser Cys Thr	Arg Thr Thr Thr Thr Gly Leu Ser Glu Ser Ile Ser Thr				
	195		200		205
Ser Glu Leu Thr Ile Thr Met Asn His Lys Asp Cys Asp Pro Val Phe					
	210		215		220
Arg Asp Gly Tyr Phe Ser Val Leu Asn Lys Val Ala Thr Ser Gly Phe					
	225		230		235
Phe Thr Gly Glu Asn Arg Tyr Gln Asn Thr Ser Asn Val Cys Thr Leu					
		245		250	255
Asn Phe Glu Ile Lys Cys Asn Asn Lys Asp Ser Ser Ser Lys Gln Leu					
	260		265		270
Thr Lys Thr Lys Asn Asp Thr Ile Met Pro His Ser Glu Thr Val Thr					
	275		280		285
Leu Val Gly Asp Cys Leu Ser Ser Val Asp Ile Tyr Ile Leu Tyr Ser					
	290		295		300
Asn Thr Asn Thr Gln Asp Tyr Glu Thr Asp Thr Ile Ser Tyr His Ala					
	305		310		315
Gly Asn Val Leu Asp Val Asp Ser His Met Pro Gly Ser Cys Asp Ile					
		325		330	335
His Lys Leu Ile Thr Asn Ser Gln Asn Pro Thr His Phe Leu					
	340		345		350

<210> 42  
 <211> 30  
 <212> DNA  
 <213> Homo sapiens

<400> 42  
 gcagcacata tgatggctga gcttgggcac

30

<210> 43  
 <211> 34  
 <212> DNA  
 <213> Homo sapiens

<400> 43  
 gcagcatcta gagcggcagt gagtcaaata catc

34

<210> 44  
 <211> 48  
 <212> DNA  
 <213> Homo sapiens

<400> 44  
 gcagcatcta gaccgccatc atggctgagc ctgggcacag ccaccatc

48

<210> 45  
 <211> 30  
 <212> DNA  
 <213> Homo sapiens

<400> 45  
 gcagcatcta gagcggcact gagtcaaattc

30

<210> 46  
 <211> 27  
 <212> DNA  
 <213> Homo sapiens

<400> 46  
 cgcggatcca tggctgagcc tgggcac

27

<210> 47  
 <211> 57  
 <212> DNA  
 <213> Homo sapiens

<400> 47  
 cgctctagat caagcgtagt ctgggacgtc gtatgggtag cggcactgag tcaaattc

57

<210> 48  
 <211> 342  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (28)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (31)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (40)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (181)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (276)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc\_feature  
 <222> (282)



<223> n equals a,t,g, or c

<400> 48

ggaccttgag ggggcagtga agctgctngc ntctggtgtn aagaccact gccaccctg 60  
caaccaggc ttcttcaaaa ccaacaacag cacctgccag ccttcccat atggttcta 120  
ctccaatggc tcagactgta cccgtgccc tgcagggact gaacctgctg tgggatttga 180  
ntacaaatgg tggaaacgc tgcccacaaa catggaaacg accgttctca gtgggatcaa 240  
cttcagatc aagggcatga caggctggga ggtgntggt gntcacattt acacagctgc 300  
tggagcctca gacaatgact tcatgattct aaatctggtt gt 342

<210> 49

<211> 291

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_difference

<222> (244)

<223> n equals a, t, g or c

<400> 49

ctcctgtgga gacgtggaaa ggttccaaa gcaaacagtc ctatacctac atcattgagg 60  
agaacactac cacgagcttc acctgggcct tcagaggac cacttttcat gaggcaagca 120  
ggaagtacac caatgacgtt gccaaagtct actccatcaa tgtaccaat gttatgaatg 180  
gcgtggcctc ctactgccgt cctgtgccc tagaagcctc tgatgtgggc tcctcctgca 240  
cctnttgtcc tgctggttac tatattgacc gagattcagg aacctgccac t 291

<210> 50

<211> 294

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (75)

<223> n equals a, t, g or c

<400> 50

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tgtgacagca cgggnttcca ggtggagggt cgccgtgccg cataccccg gctgtgac 120  
cagcctgcct gaccccgta agggcacoga gtgctccttc tcctgcaacg cgggggagtt 180  
tctgatatg aaggaccagt catgtaagcc atgcgctgag ggccgctact ccttcggcac 240  
aggcattcgg ttgatgagt gggatgagct tgccccatgg ctttgagcc tttt 294

<210> 51  
<211> 267  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (41)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (171)  
<223> n equals a,t,g, or c

<220>  
<221> misc\_feature  
<222> (207)  
<223> n equals a,t,g, or c

<400> 51  
ccaagatcta ctcccaaat gtcaccaatg ttatgaatgg ngtggcctcc tactgccgtc 60  
cctgtgccct agaagcctct gatgtgggct cctcctgcac ctcttgctct gctgtgtact 120  
atattgaccg agattcagga acctgccact cctgcccccc taacacaatt ntgaagagcc 180  
accagcotta tgggtgtccag gccgtgntgc cctgtgggtcc agggaccaag aacaacaaga 240  
tccactctct gtgctacaat gattgca 267

<210> 52  
<211> 274  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (107)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (196)  
<223> n equals a, t, g or c

<400> 52  
aaagaatcaa aaactagagt acaagtactc caagctgggtg atgaatgcta ctctcaagga 60  
ctgtgacctg ccagcagctg acagctcgcc atcatggaag gcgagngtgt agaggacgac 120  
ctcatcttta ccagcaagaa gtcaactcttt gggaagatca aatcatttac ctccaagagg 180  
actcctgatg gatttnactc agtgccgctg aagacatcct caggaggccc agacatggac 240  
ctgtgagagg cactgctctg ctcacctgct tcct 274

<210> 53

<211> 245  
<212> DNA  
<213> Homo sapiens

<400> 53  
ccaagccgaa aatctgtagc gaggaccttg agggggcagt gaagctgctg cctctgggtg 60  
gaagaccac tgcccacct gcaaccagg cttcttcaaa accaacaaca gcacctgcca 120  
gccctgcccc tatggttcct actccaatgg ctacagactgt acccgctgcc ctgcagggac 180  
tgaacctgct gtgggatttg aatacaaatg gtggaacacg ctgcccacaa acatgggaaa 240  
cgacc 245

<210> 54  
<211> 292  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (5)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (202)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (245)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (246)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (291)  
<223> n equals a, t, g or c

<220>  
<221> misc\_difference  
<222> (292)  
<223> n equals a, t, g or c

<400> 54  
ggcanaggga atttgactca gtgccgctga agacatcctc agggagccca gacatggacc 60  
tgtgagaggc actgctgccc tcacctgcct cctcaccttg catagcacct ttgcaagcct 120  
gcggggaattt ggggtgccagc atcctgcaac acccactgct ggggaaatctc ttcattgtgg 180  
ccttatcaga tgtttgaatt tnagatcttt ttttatagag tacccaaac ctcctttctg 240

cttgnntcaa acctgccaaa tatacccaca ctttgtttgt aaaaaaaaaa nn

292

<210> 55  
<211> 220  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (164)  
<223> n equals a, t, g or c

<400> 55  
atcttctttt ataggtccaa tgatgtgacc cagtcttgca gttctgggag atcaaccacc 60  
atccgcgtca ggtgcagtc acagaaaact gtccctggaa gtttgctgct gccaggaacg 120  
tgctcagatg ggacctgtga tggctgcaac ttccacttcc tgtnggagag cgcgctgtct 180  
tgcccgtct gctcagtggc tgactaccat gctatcgta 220

<210> 56  
<211> 427  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (44)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (77)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (234)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (260)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (268)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (271)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature

<222> (272)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
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<223> n equals a, t, g or c

<220>  
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<222> (305)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (308)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (331)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (355)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (359)  
<223> n equals a, t, g or c

<220>  
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<222> (368)  
<223> n equals a, t, g or c

<220>  
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<222> (372)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (381)  
<223> n equals a, t, g or c

<220>  
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<222> (388)  
<223> n equals a, t, g or c

<220>  
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<222> (398)  
<223> n equals a, t, g or c

<220>  
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<222> (400)  
<223> n equals a, t, g or c

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<223> n equals a, t, g or c

<220>  
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<222> (427)  
<223> n equals a, t, g or c

<400> 56  
aattcggcag agctcagaca atgacttcat gattctcact ctgnttgtgc caggatttag 60  
acctccgcag tcggtgntgg cagacacaga gaataaagag gtggccagaa tcacatttgt 120  
ctttgagacc ctctgttctg tgaactgtga gctctacttc atgggtgggtg tgggaattcta 180  
gggaccaaca cttcctgtgg aggacgtggg aaagggttcca aagggcaaac agtncccttat 240  
tacctgacat gcattgaggn aggaacantt nncnnggagg ttccaactgg ggcctttccc 300  
gaggnacnac ttttttcatg gagggccaag ncaggggagt tacaacccat tgnacgttng 360  
gccaaaggntc tnatttccat ncaatgtnc accaatgntn atggaanggg tggtggggcc 420  
ttgcttn 427

<210> 57  
<211> 367  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (5)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (55)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (66)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (67)  
<223> n equals a, t, g or c

<220>  
<221> misc\_feature  
<222> (116)  
<223> n equals a, t, g or c

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<220>
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<222> (123)
<223> n equals a, t, g or c

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<220>
<221> misc_feature
<222> (275)
<223> n equals a, t, g or c

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<220>
<221> misc_feature
<222> (315)
<223> n equals a, t, g or c

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<220>
<221> misc_feature
<222> (340)
<223> n equals a, t, g or c

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<220>
<221> misc_feature
<222> (348)
<223> n equals a, t, g or c

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<220>
<221> misc_feature
<222> (356)
<223> n equals a, t, g or c

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<400> 57
ggcanaggct gagtcaccg ggaactgtac ttcgccaag tgggttcccc ggggngactt 60
gategnntcc aacacggagc aatgcacagc cacactgatg tacgccgtca acctgnaagc 120
agnctggtca ccggtgaact tcggaatact actatccaga ctccatcatc atctttgaag 180
tttttcgttc agaatgacca gtgccagccc aatgcagatg actccagggtg gatgaagacc 240
acagagaaa gatgggaatt ccacagtgtg agctnaaatc gaggcaataa tgtccgttat 300
tgggggaacc acagncttct tcaatgatgg gaccaaagtn acccaagnct gtgctnggtg 360
gaggaaa

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367

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<210> 58
<211> 333
<212> DNA
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (20)
<223> n equals a, t, g or c

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<220>
<221> misc_feature
<222> (23)

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<223> n equals a, t, g or c

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<221> misc_feature
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<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (80)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (85)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (103)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (129)
<223> n equals a, t, g or c

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<222> (152)
<223> n equals a, t, g or c

<220>
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<222> (171)
<223> n equals a, t, g or c

<220>
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<222> (244)
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<222> (260)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (269)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (275)
<223> n equals a, t, g or c

<220>
<221> misc_feature
<222> (293)

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<223> n equals a, t, g or c

<220>

<221> misc\_feature

<222> (307)

<223> n equals a, t, g or c

<220>

<221> misc\_feature

<222> (320)

<223> n equals a, t, g or c

<400> 58

taactctggt tgtcccaggn ttnaaacctc cgcagtcggt gaatggcaga cacagagaat 60

aaagagggtg ccagantcan attntttttt aaaaccctct gtntctgtgaa actgtgaagc 120

tctacttgna tgggtgggtgt gaaattctag gnaccaaacac tcctgtggag nacgtggaaa 180

aggttccaaa ggcaaacagt cctataccta catcattgaa ggaggaacac taccacgagg 240

ttgnacctgg gcccttccan agggaccant tttcnatgag ggcaagcagg gangtacacc 300

attgagngtt gcccagggttn tattccttca atg 333

<210> 59

<211> 70

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (40)

<223> n equals a, t, g or c

<220>

<221> misc\_feature

<222> (60)

<223> n equals a, t, g or c

<220>

<221> misc\_feature

<222> (66)

<223> n equals a, t, g or c

<400> 59

ggcacaggca aagattatttt ctacacacac acggcctgcn atgccaacgg agagacacan 60

ctcatntaca 70

<210> 60

<211> 3152

<212> DNA

<213> Homo sapiens

<400> 60

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ccaccatgg attgccaaga aaatgagtac tgggaccaat ggggacgggt tgtcacctgc 120

caacggtgtg gtctctggaca ggagctatcc aaggattgtg gttatggaga ggggtggagat 180

gcctactggtc	acagcctgcc	ctcctcgag	tacaaaagca	gtgggggcca	ccacaaatgt	240
cagagctgca	tcactgtggtc	tgctcatcaat	cgtgttccaga	aggtcaactgt	cacacctacc	300
tctaagtctgt	tcctgtgggga	ctgtttgccc	aggtctctacc	gaagagacacg	cattggaggcg	360
ctgcaggacc	aagagtgcat	cccgtgcacg	aagcagacc	ccacctctga	ggttcaatgt	420
gccttccagt	tgagcttagt	ggaggcagat	gcacccacag	tgccccctca	ggaggccaca	480
cttgtgtcac	tggtgagcag	cctgtctagt	gtgtttacc	tgcccttccct	ggggctcttc	540
ttctctctact	gcaagcagtt	cttcaacaga	cattgcccag	gtggagggttt	gctgcagttt	600
gaggctgata	aaacagcaaa	ggaggaatct	ctcttcccg	tgccacccag	caaggagacc	660
agtgtcgtgt	cccaagctct	ttggggccct	ggcagccttg	ccagcttgtt	ctctctggag	720
ctgttctgta	taccacaaca	gcagcagggg	ctgaaatgt	gatgtccaca	agagcttaata	780
ccctacagat	ggggcatatc	ctatcccat	ccaccagagg	attgatcttc	cattttcaca	840
ggagctgact	ggagcatctt	ttgtctccct	gtgttagtct	ggggagccag	attcccatct	900
catgggaact	ccagacatgt	tcctagctca	acttgattat	agagaagagg	agagaggaca	960
gtgaatgggg	tagggttttc	atgtctgcac	ttttgttcag	gtaagcctct	caaaaattgtg	1020
ttggcacatc	taccatgac	tttagggaca	aaatcaaac	cttctccctt	tttagctcct	1080
ccacactgcc	tcctctccca	acacacacac	acacacatac	acacacatat	acatagacac	1140
acaaacacac	acacacacat	taatatctat	cttgggggaa	gctctgtgcc	ataattccca	1200
agtcactgtc	cagactgtgt	cattgcagca	tgacgcagg	caaacacttt	ccctctagat	1260
ccctggggccc	tcaccctgta	tttgagggtt	tcacacccct	cagcagggag	aaaggctgaa	1320
gttcgccatt	ttgggaacct	acagaaactt	ctcgagccaa	agtaactctc	cttctggggc	1380
ctgagttccc	taaaactccc	ccacagcagtc	cctcaaaagc	agccctcaat	ccatgtaggg	1440
acatctgagt	atgcctcttt	ctattgaaat	gtcaattcaa	tcccagcttt	ctcaccaccg	1500
ttcccccttg	attctttctc	aattgtcttt	ttgcctttag	ctccccactca	tacatctact	1560
gctcagagaa	aaacaagtgt	cttagagggt	gtattcttta	ttctccaaga	atctgtctga	1620
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